CLAIMS

1. A stabilizer control apparatus for controlling a torsional rigidity of a stabilizer disposed between a right wheel and a left wheel of a vehicle, to control a rolling motion of a vehicle body actively in response to a turning state of said vehicle, comprising:

wheel stroke detection means for detecting a relative displacement between said vehicle body and said right and left wheels for at least one of a front axle and a rear axle of said vehicle;

wheel stroke difference calculation means for calculating at least one of a difference between right and left wheel strokes and a difference between right and left wheel stroke velocities, on the basis of the result detected by said wheel stroke detection means;

externally applied force setting means for setting an externally applied force for controlling the torsional rigidity of said stabilizer, on the basis of the result calculated by said wheel stroke difference calculation means, when said vehicle is traveling straight.

2. A stabilizer control apparatus as set forth in claim 1, wherein said externally applied force setting means sets the externally applied force on the basis of a desired value for decreasing a roll rigidity, said desired value for decreasing the roll rigidity being determined on the basis of said difference between right and left wheel strokes.

3. A stabilizer control apparatus as set forth in claim 1, wherein said externally applied force setting means sets the externally applied force, on the basis of a desired value of roll damping force, said desired value of roll damping force being determined on the basis of said difference between right and left wheel stroke velocities.

4. A stabilizer control apparatus as set forth in claim 1, wherein said externally applied force setting means sets the externally applied force, on the basis of a desired value for decreasing a roll rigidity, said desired value for decreasing the roll rigidity being determined on the basis of said difference between right and left wheel strokes, and a desired value of roll damping force, said desired value of roll damping force being determined on the basis of said difference between right and left wheel stroke velocities.

5. A stabilizer control apparatus as set forth in claim 1, wherein said externally applied force setting means sets the externally applied force, on the basis of a desired value for decreasing a roll rigidity, said desired value for decreasing the roll rigidity being determined on the basis of said difference between right and left wheel strokes, a desired value of roll damping force, said desired value of roll damping force being determined on the basis of said difference between right and left wheel stroke velocities, and a desired value of active roll moment of said vehicle.

6. A stabilizer control apparatus as set forth in claim 5, wherein said externally applied force setting means sets the

externally applied force, according to the following
equation:

Rt=Rm-K5·Rr(St)+K6·Rd(dSt)

wherein,

Rt: externally applied force

Rm: desired value of active roll moment of a vehicle

Rr(St): desired value for decreasing roll rigidity
determined on the basis of a difference between right and
left wheel strokes

Rd(dSt): desired value of roll damping force determined on
the basis of a difference between right and left wheel
stroke velocities

K5,K6: control gain

St: difference between right and left wheel strokes

dSt: difference between right and left wheel stroke
velocities

7. A stabilizer control apparatus for controlling a
torsional rigidity of a stabilizer having a stabilizer bar
disposed between a right wheel and a left wheel of a vehicle,
to control a rolling motion of a vehicle body actively in
response to a turning state of said vehicle, comprising:
wheel stroke detection means for detecting a relative
displacement between said vehicle body and said right and
left wheels for at least one of a front axle and a rear axle
of said vehicle;
wheel stroke lateral difference calculation means for
calculating a difference between right and left wheel

strokes on the basis of the result detected by said wheel stroke detection means;

externally applied force setting means for setting an externally applied force for controlling the torsional rigidity of said stabilizer, on the basis of the result calculated by said wheel stroke lateral difference calculation means; and

turning factor setting means for setting a turning factor indicative of the turning state of said vehicle, said torsional rigidity of said stabilizer bar being decreased to be lower than a value inherently provided for said stabilizer bar, according to the externally applied force set by said externally applied force setting means, in response to the turning factor set by said turning factor setting means.